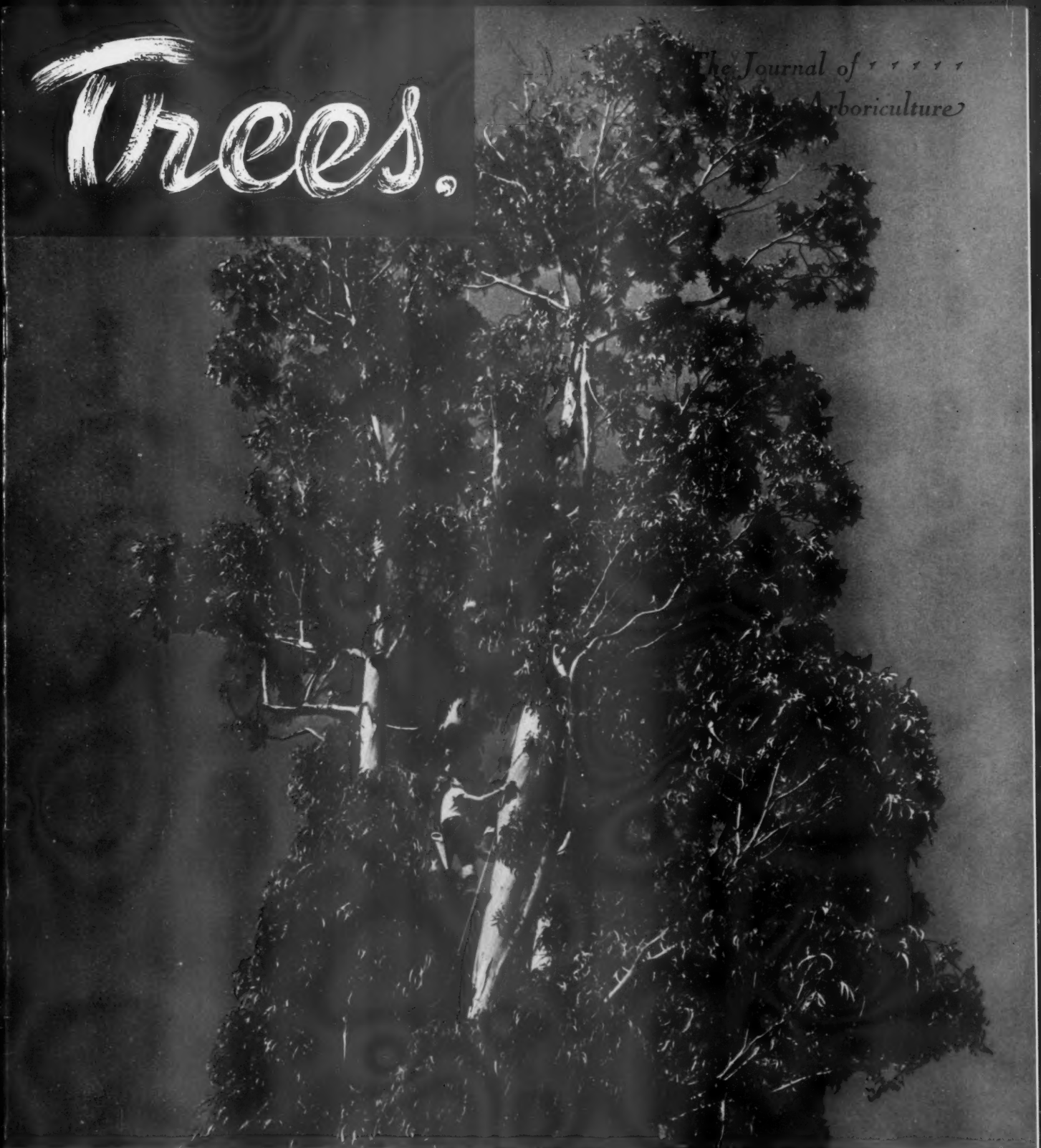
Trees.

The Journal of Arboriculture



Skinning a Big Euc. *(Eucalyptus globulus)*

Fifth Southern Shade Tree Conference in Miami This Month

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TREES Magazine is a bi-monthly Journal published at Santa Monica, California, by Edward H. Scanlon, and is devoted to the furtherance of the technical and business administration of Trees (Street and Ornamental); Parks (Municipal and National); and Forests (State, National and Private), in the U. S. P. O. Box 886, Santa Monica, California. Subscription by mail, $1 per year; outside United States, $1.50. Advertising rates upon inquiry. Unsolicited manuscripts must be accompanied by postage return.

ALONG THE WAY

With . . . EDW. SCANLON

■ DR. E. P. FELT and DR. CLYDE HAMILTON, out on the Coast for the San Francisco meeting of the AMERICAN ASSOCIATION OF ECONOMIC ENTOMOLOGISTS, dropped in. With FRED ROEWEKAMP, BILL NICHOLAS and TED HOLDERNESS, we SPENT AN INTERESTING DAY with DR. FELT. Helped him CELEBRATE HIS BIRTHDAY, in fact.

* * *

■ *The following comes from LARRY WACHTEL, WAUWATOSA, WIS. "I have enjoyed the 'Fastigiate Tree Series' very much. Sorry they have now ended."*

* * *

■ Maybe you DON'T CARE A DARN, but the last item listed in HORTUS SECOND is ZYGOPHYLLACEAE, the Caltrop family. So—

* * *

■ *A reprint of GEO. ZENTMYER'S (CONN. AGRI. EXP. STA., NEW HAVEN) paper "CYTOSPORA CANKER OF ITALIAN CYPRESS" received and hereby GRATEFULLY ACKNOWLEDGED. Incidentally, GEORGE, I believe I have seen more MONTEREY CYPRESS folding up this year DUE TO THIS CAUSE THAN EVER BEFORE—in the LOS ANGELES area.*

* * *

■ Writes Carl Gerhardy, L. A. County Forestry Dept., re: our squib about collecting KOELREUTERIA PANICULATA seed while in the BIG TENT (Wash., D. C.) this summer:

"Our Department has used this tree for the past several years for PLANTING IN THE WATERSHED AREAS of the County, and I thought you might be interested to know of some specimens that are growing in the County territory. POSSIBLY THE BEST SPECIMEN IS TO BE FOUND near the San Fernando Mission, which was undoubtedly planted several years ago by the San Fernando Nursery. Another is at the intersection of Mountain Street and Ardeven in Glendale. I first observed this tree several years ago and have watched it develop very slowly. At this time of the year it is beginning to lose its leaves, but in THE SPRING AND SUMMER MONTHS IT IS CERTAINLY A THING OF BEAUTY. I am glad that you plan on getting SOME ESTABLISHED IN YOUR COMMUNITY. The following is a list of a few trees known to us in the County:

	Height	Diam.
Altadena—1077 E. Foothill, one in grounds	20'	6"
San Fernando—10919 Sepulveda 2 in yard	22'	8"
Wilmar—Old Newmark place, N/o Graves, E/o San Gabriel Blvd.—2 on grounds	20'	6"
Glendale—Mountain St. and Ardeven	?'	?"

THANKS, CARL, We'll get some PIX.

* * *

■ *BILL ERDMAN in OMAHA tells about the "stinko" 10 below weather, then says he thinks he'll spend the REST OF HIS DAYS in SOU. CAL. where NOTHING EVER HAPPENS "but EARTHQUAKES, FLOODS and WINDSTORMS . . ."*

Oh, yeah! what about the Japs?

* * *

■ Remember "COURAGEIDOR."

■ Dear Ed: I note in the Nov-Dec issue of *TREES* that you have COMPLETED THE SERIES ON FASTIGIATE TREES—think you will be interested to learn that there is a very fine specimen of FASTIGIATE SUGAR MAPLE near Ventura. This tree is 52 years old, 16 inches D. B. H., APPROX. 45 FEET HIGH, with a spread OF ABOUT 12 FEET. The tree is located in a garden about 11 miles east of Ventura on the south side of Telegraph Road. A mile or two west of the Maple IS AN OLIVE which has attained A HEIGHT OF APPROXIMATELY 75 FEET. Do you know of a taller one? If you know of anyone WISHING TO SEE THESE TREES, I will be glad to ACT AS GUIDE.—ED TUOMEY, Calif. Div. of Highways, Ventura, Calif.

* * *

■ *DOC BLUME is still SITTING DOWN THERE IN THE CACTUS yelling about "God's Country." DON'T YOU READ history, Doc—"GOD'S COUNTRY" means CALIFORNIA, not TEXAS.*

* * *

■ Just received a BEAUTIFUL GIFT from a GOOD FRIEND and SUBSCRIBER in RIO DE JANEIRO, BRAZIL. SENOR RAMON DURAN MUCIENTES sent this book called "ALBUM FLORISTICO." It contains 63 FULL COLOR PAGE CUTS of the OUTSTANDING FLOWERING TREES OF BRAZIL. The book was compiled by DR. FRANCISCO DE ASSIS IGLESIAS, Director of Servico Florestal. IT IS INTENDED to BRING ATTENTION to the BRILLIANCE OF BRAZILIAN FLORA. In this it SUCCEEDS ADMIRABLY.

* * *

■ *NELS JOHNSON, ARBORIST of EVANSTON, ILL., sent a handful of SWELL PIX on various TREE PRESERVATION OPERATIONS. You'll see two of them in "THE MAN IN THE FIELD REPORTS." Nice job, and thanks, NELS. HOW ABOUT IT, ANYONE ELSE got a nice cavity or bracing job WITH SOME GOOD PIX..*

* * *

■ LARRY WACHTEL of WAUWATOSA, WIS., very NICELY, and RIGHTLY, CALLED MY ATTENTION to a serious BLUNDER OF OMISSION in my story on the NATIONAL ARBORISTS ASSOCIATION in the last issue. It seems I completely neglected to mention the SPLENDID WORK done for this organization by WES HOLLISTER. Guess I must have been DRINKING TOO DEEPLY of this BRACING CALIFORNIA AIR because everyone, myself included, knows of the DEEP DEVOTION WES gave to his job as the PIONEER SECRETARY of the N. A. A. FOR THREE YEARS. MY APOLOGIES to you, WES, and THANKS TO LARRY.

* * *

■ *I'm grateful to DR. THADDEUS PARR OF YALE for a copy of his Bulletin No. 46, "ASTEROLECANIUM VARIOLOSUM Ratzeburg, a Gall-Forming Coccid, and Its Effect Upon the Host Trees."*

* * *

■ *Thanks to GEO. HARDING, National Capitol Parks, Washington, D. C., for a mess of GOLDENRAIN SEED, also some of BIGLEAF MAGNOLIA. This Goldenrain (KOELREUTERIA PANICULATA) is a HONEY OF A TREE—wonder why IT ISN'T USED MORE, particularly east where there are SO FEW FLOWERING TREES. Anybody GOT ANY IDEAS..*

* * *

■ JAKE GERLING, ASST. SUPT. OF PARKS at ROCHESTER, N. Y., and one of the authors of the POPULAR SERIES on FASTIGIATE TREES, recently completed, tells me they have a FASTIGIATE FORM of ACER NIGRUM and IT'S A HONEY. He's sending pix—WE'LL SHARE IT WITH YOU.

* * *

■ *The JAPS WILL GET a REAL BIG WAKE when this little picnic IS SETTLED.*

* * *

■ The January "AMERICAN HOME" carried a picture on page 8 of a BEAUTIFULLY DESIGNED STREET OF TREES. E. L. D. SEYMOUR, Editor of "A. H." informs us that the view is OF THE GRAND CONCOURSE, one of the north and south boulevards, in the BRONX, looking north from 167th St. It is a region of LARGE APARTMENT BUILDINGS and in addition to the curb planting, contains TWO 8 OR 10 FOOT OFF CENTER ISLANDS also planted.

It is a MAJESTIC BOULEVARD worthy of being copied.

* * *

■ *Note that GRIGGS WARING, formerly assistant, has been promoted to CITY FORESTER AT MILWAUKEE, WIS. GOOD LUCK and best wishes.*

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Subscription Price $1.00 per Year

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January-February, 1942 *The Journal of American Arboriculture* Volume 5—No. 1

EDWARD H. SCANLON, Editor
Editorial Office: 1102 Twentieth Street—P. O. Box 886—Santa Monica, California

"No place is complete without trees. A home without trees is charmless; a road without trees is shadeless; a park without trees is purposeless; *a country without trees is hopeless*"

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CORDIALLY YOURS

TREES IS FIVE YEARS OLD—LOOKS AHEAD

This issue marks the advent of *Trees'* fifth year: Thanks to many fine fellows who have cheerfully and unselfishly cooperated with us to bring to the field of American Arboriculture a badly needed "corner drug-store" where the news of the profession could be disseminated throughout the Nation.

Subscribers, contributors and advertisers have all been very much concerned in the progress of *Trees* and whatever progress has been made is due entirely to the combined efforts of these splendid people. We have made many real lasting friendships that are well worth all of the headaches that are an inevitable part of a pioneer publication venture, and although a few gray hairs have begun to glint where was only brown before, it's alright, it's worth it.

We look into the future, even the immediate future, and can only be very optimistic regarding the prospects for tree preservation and horticulture in general.

The last World War proved a tremendous boon for gardening, in fact it marked the first real turning point of American interest in gardens and the intervening years have added richly in accomplishments to this the finest of all arts and recreational diversions.

Transportation and other developments of the past twenty years have resulted in taking many young people out of their gardens and yards, but with the very serious war that now faces us, with the already drastic curtailment of the use of rubber for tires and sale of automobiles, as well as the imminent rationing of gasoline, where else can Mr. and Mrs. America, young and old, find healthy entertainment and useful diversion but among their trees and in the garden.

There will be born out of this war a great tree-minded and garden-minded America, ten times greater than ever before. It would seem like a great obligation for the National Shade Tree Conference at this time to prepare a series of bulletins for public consumption on the benefits and rudiments of professional tree preservation, of simple keys for identifying common trees and shrubs and other equally worthwhile subjects that would be useful to and appreciated by a public whom tree preservation must sell, and whom they will never have a better chance to sell than the present.

Park departments and City forestry divisions can help with series of articles in local papers on the value of street trees

and the usual lack of care they receive due to inadequate budgets; by labeling trees in parks, etc.

Tree preservation is bound to boom and it remains to be seen how wisely we take advantage of this great opportunity. The eighteenth National Shade Tree Conference to be held in Chicago in August should be made better than ever and should be ballyhooed stronger than ever. Here's what we've all been waiting for.

WAR—THEN CULTURE

America has opened and civilized all of her frontiers. We saw the culmination of this in the recent depression when the sins of the past caught up and we were obliged to place on relief fifteen or more millions of the people who had helped to wrest great fortunes from the virgin America. Are we to continue in this soft slaphappy mode of life? No, Pearl Harbor changed all that. Pearl Harbor brought to us the fact that there are many new frontiers in this still primitive world that need to be opened and made free—but not soft like our America. And what about home—here will be built the citadel of world culture and democratic leadership that will change and lead the peoples of the entire world to the way of life taught by the Man of Peace so many centuries ago.

Our cities will awaken to their crude appearance. There will be demands for beautiful, peaceful cities; these demands will be accomplished by the intelligent planning of public streets and parks. How else can a city be made charming except by the judicious, intelligent placing of trees in usefully designed streets. Mere piles of stone or steel—architecture, will not soften and make beautiful or give a cultured appearance—well planted streets will do this even where the architecture is not so imposing. This will come, not, however, until we have slapped into complete submission the yellow emissaries of hell who gave us Pearl Harbor.

Something Wrong Someplace

Acer saccharum monumentale: This tree is a striking example of the trials and tribulations that beset an arboretum. One plant was found in a cemetery in Newton, Massachusetts, and scions were taken January 21, 1885. As a result of this propagating our plant has since been growing in the Arboretum for over fifty years only a hundred and fifty feet from the Arborway, one of the very busy parkways serving Boston. Approximately 11,000 cars pass in sight of this tree from 7 a. m. until 6 p. m. on an average day in winter and, of course, this number is considerably greater during the spring and summer. Its picture has appeared in the Bulletin of Popular Information (Plate XII, 1938, p. 65), it has been illustrated in newspapers and gardening magazines throughout the east, and as a result it has undoubtedly been seen by at least a million readers during the past fifteen years. (See cover picture, TREES, March-April 1941 issue). It has been discussed before garden clubs and nursery organizations throughout the east and middle west. On several occasions during the last fifteen years, it has been carefully described in nationally circularized garden magazines.

This tree is always pointed out to Arboretum visitors as outstanding among the many unusual ones grown at the institution. It has all the meritorious characteristics of the sugar maple, differing only in its columnar habit. It has the growth form of the Lombardy poplar without the objectionable characters of that widely known and commonly planted columnar tree. Many people photograph it, write us about it, and inquire where it may be purchased. Yet, it is offered in no nursery catalogue.

What has the Arboretum done to disseminate it? Our propagator, Mr. Judd, has kept detailed records about this plant since 1922. Approximately 4000 scions have been cut and distributed from this one tree, and 22 living plants have been sent to various organizations interested in the propagation of rare or unusual varieties. In spite of all this, still the tree is not available to the general public. One nurseryman obtained grafting material five different times between 1927 and 1933; yet he has never listed it in his catalogue.—Arnold Arboretum, Bulletin of Population Information.

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Western Conference Date Draws Near

In May (7-8-9) the Ninth Western Shade Tree Conference will convene in Long Beach, Calif., for a meeting that will stress practical phases of tree preservation as its theme.

The afternoon of the second day will be entirely devoted to demonstrations of various types of mechanical and motorized equipment such as will be so necessary in the rush days ahead. There will be automotive tree hole diggers, spray rigs, cranes for lifting stumps, logs and boxed trees, aerial ladders for pruning, the Irish Aero-fertil gun, a huge machine recently perfected for hedge-trimming large citrus and other windbreaks. Also, there will be demonstrations of rope climbing and the use of ropes in lowering large limbs; a cabling demonstration; a boxing operation and a demonstration of bridge-grafting and in-arching.

This splendid program will be preceded by a special barbecue luncheon served in Bixby Park, prepared by the master of the pits, Otto Bayer.

The arrangements and program committee has been working hard and faithfully. They have held regular monthly meetings since the Eighth Conference in San Jose, to compose a program that will draw together the greatest gathering of Arborists, Park Superintendents, Nurserymen, Landscape Architects, Foresters and others in the history of the Pacific Coast. In addition to Ted Holderness, President of the Conference, the committee includes H. J. Scherer, Superintendent of Parks, Long Beach; Glenn Garwood, Superintendent of Parks, South Pasadena; W. S. Rowland, Rowland & Newhouse Tree Service, Los Angeles; Fred Roewekamp, City Forester, Los Angeles; Dale Griggs, Superintendent of Parks, Santa Ana, and Edward Scanlon, Editor of *Trees*.

A boat trip through the Long Beach Harbor is naturally out with wartime prohibition over that area; however, a marvelous program is on tap and no one can afford to miss it. It should strike a new high note in the Conference slogan of "A New Era in Tree Culture for the West."

ODDITREES

This odditree never need worry about sufficient food, that is if it could assimilate beans or hot dogs, because it is located right in a restaurant in the little California cattle town of Los Banos.

Mr. and Mrs. Ted Holderness and *"Trees"* stopped here for a bite on our return from the eighth Western Shade Tree Conference last May in San Jose. In order to secure the picture Ted and I had to do quite a table and chair moving job; however, we aroused no opposition on the part of the friendly proprietor and the picture tells the story.

There is a concrete curbing around the base of this Blue Gum (*Eucalyptus globulus*) and the area adjacent to the trunk is filled with sand whereby the tree can be watered as needed. Where the three foot trunk goes through the ceiling a sleeve of heavy tarred canvas has been fastened to the roof and firmly secured, by tying, to the trunk. The suckers that have sprouted on the trunk are not chlorotic in appearance and evidently the light from adjacent windows is sufficient for the foliage to function normally.

Blue Gum Eucalyptus growing in restaurant

This is really an interesting sight and forms a pleasing novelty in the restaurant field. The tree was originally planted as a county line marker about fifty years ago.

POINSETTIA SCAB

Readers of *Nursery Disease Notes* will recall the report in the October, 1941, issue, of a new bacterial disease of Poinsettia. The causal organism, as well as its dissemination, are now being studied.

Another disease known as scab, was recently reported by George D. Ruehle of the Florida Sub-Tropical Experiment Station. Mr. Ruehle first discovered the disease on a red, double-flowering variety near Goulds, Florida, in 1940, and later on a red single-flowering poinsettia in gardens of Miami, Florida.

All diseased stems show numerous conspicuous, raised lesions or cankers. These lesions are circular to elongate and vary from 1 mm. to 1 cm. or more in length with the longer diameter parallel to the stem axis. When the lesions become numerous in one area, the stems are girdled and the leaves on the distal portions drop prematurely.

Leaf lesions, confined mainly to the petioles, midrib and veins, also occur. The causal fungus, shown to be responsible for this trouble, belongs to the genus *Sphaceloma*. — *Nursery Disease Notes*.

Soil and Sick Trees

By ARTHUR HAWTHORNE CARHART
Landscape Architect, Denver, Colo.

Plants are living things. You have heard that many, many times. And probably you have heard also, that because they cannot move about, seeking their food, the arboriculturist must bring food to them when and if they need it.

In the days past, a general practice was to either plant and pray that the soil, water and air would supply sufficient nutrients for the tree, or mix up a gunshot fertilizer, containing this and that, and sling it at the roots, leaving it to the tree to pick up whatever it might need from the inclusive fertilizer.

There are several things about that old practice that are wrong. There are three principal plant foods that are needed in quantity and in balance, to make good vegetative growth. They are nitrogen, phosphorus and potash. To put a "complete" fertilizer on a soil may be adding a quantity of one plant food already there. That is uneconomical. More important, it may throw the balance between plant foods out of kilter.

For example, the soil around a tree might have wholly adequate nitrogen. By adding a quantity in a "complete" fertilizer, you might produce water sprout and sucker growth in abundance, but miss your real objective which could be the production of more flowers and fruit. Flowers and fruit need the other two major plant foods. On top of that, even though adding the "complete" formula to a soil, which would add phosphorus and potash, the balance between the foods would be upset. And there are too many experiments and records of practical cultural experience that prove balance is of high importance. Even if the soil is totally deficient in all three elements, and there is a proper ratio between foods, a plant will do better in that growing medium than it will in a soil where there is an overbalance of one or two nutrients and no more than an adequate amount of the other.

If you approach this question of feeding trees, in any orderly and analytical manner, there are two steps. First, you should know with some degree of accuracy, what nutrients are in the soil. Second, knowing that, food should be added to make up the deficiencies in such proportions as to secure the important balanced ration.

Interlocked with this question of adequacy or deficiency of the principal nutrients, is the basic question of whether the soil is acid, neutral or alkaline. If you wish to go into this somewhat intensively, and make checks on the foodstuffs you may give your trees, you will find that an over acid or over alkaline soil may lock up certain fertilizer chemicals, and although you may add them in some quantity, they will not be available to the feeder roots of your trees. That is a first angle on this question of acid-alkaline conditions in the soil.

Of even greater importance in determining this acid-alkaline situation in a soil, is the selection of tree species to fit the soil. Two examples will suffice.

The relative acidity or alkalinity of a soil is indicated by "pH". A pH reading of 7 is neutral; above that is alkaline and below that is acid. Never plant a Red Bud or Judas Tree in a soil that has a pH reading of 8; a distinctly alkaline soil. But you can plant the Russian Olive in a soil that is heavily alkaline and it will thrive.

In a western city, the park superintendent declared he would grow rhododendrons or bust. He busted. He dug out a great capacious hole, filled it with slightly acid peat, threw in some aluminum sulphate to boot, and planted the rhodos in that artificial pocket. The first year they thrived. The second they struggled. The third their leaves yellowed and they died. Soil water from a soil distinctly alkaline had seeped in, counteracted the acid, and the rhododendrons expired. If he had checked the soil condition in that pocket, and had wished to fight the battle farther, he might have won by dousing the earth at that point with some acid corrective. For the soil would have shown the alkaline reaction had it been tested.

As a general rule, particularly with reference to trees, plant those that like an alkaline soil in such a soil; those that must have the acid soil in that type of soil. And the first step is to determine the "pH" of the soil in which planting is to be done. Many disappointments can be averted by this fundamental step.

Some diseases will kill trees that are generally perfectly healthy. Those tender in a location where gaseous contaminations are in the air, will not thrive there, regardless of adequacy of foods. Some bacterial and fungus diseases will attack wholly healthy trees. But just as in humans, trees that are getting their daily diet of adequate nutrients, are harder to kill than those not receiving proper food in proper proportions. So it is a fundamental approach, to any sort of tree trouble whatsoever, to size up the diet that tree is procuring and see that it is right.

Nutrition is a fundamental in tree health. While obvious fungus or bacterial diseases can be recognized and preventive sprays or other measures applied, there are many unhealthy conditions with obscure symptoms that can be traced to food troubles. And any wise horticulturist will begin his diagnosis of what may be wrong by determining the food situation in the soil from which the ailing tree must feed.

In years gone by, when the old gunshot fertilizer attack was the only approach, we worked blind. Later, by the aid of our many experiment stations, we were able to get soil tests. But often they were long in time required to secure the answers and the tree could be dead before the information was received. At times these soil analyses were so complicated the average culturist could not decipher the answers.

Today you can carry a soil testing kit in your car; you even can carry one of the little fellows in a pocket. The system of determining the acid-alkaline condition of the soil, and the proportional amounts of the three principal plant foods has been so simplified that an eighth grade scholar can learn the chemical conditions in a soil.

The kit consists of a series of test tubes and bottles of reagents. In the "professional" size kit there are little glass funnels to clarify solutions by passing the liquids through filter papers. You simply mix soil and the specified solutions, filter them into a clean test tube, and look at the color. The kit has a

(*Continued on page* 16)

Fifth Florida Conference of Southern Arborists

A very interesting well-rounded program is on tap when President Bob Weakley calls the Fifth Southern Shade Tree Conference to order at Miami on the nineteenth of February.

The meeting will be in session for three days, and according to A. D. Barnes, General Chairman, the largest gathering of the series is expected. One of the important steps of the Conference is the expected vote to affiliate the Conference as a chapter of the National Shade Tree Conference, thereby cooperating with arboricultural leaders throughout the country for a single, strong organization.

PROGRAM

FIFTH SOUTHERN SHADE TREE CONFERENCE

El Comodoro Hotel
Miami, Florida
February 19-20-21, 1942

Thursday, February 19

A. M.

9-10—Registration: El Comodoro Hotel, Miami, Florida

10:00—Conference Called to Order
Address of Welcome: Mayor of Miami, Florida
Response: R. M. Weakley, President, Southern Shade Tree Conference, West Palm Beach, Florida
Remarks: Dr. E. N. Cory, President, National Shade Tree Conference, College Park, Markland

10:30—Control of Important Insects of the Southeastern States:
Dr. John T. Creighton, Department of Entomology, University of Florida, Gainesville, Florida

10:45—Shade for Southern Pastures:
Dr. John C. Clifford, University of Miami, Coral Gables, Florida

11:00—Some Misnomers of Shade Trees and Ornamentals:
Professor Harold S. Newins, School of Forestry, University of Florida, Gainesville, Florida

11:15—Mimosa Wilt—A Major Problem:
Dr. George H. Hepting, President, Division of Forest Pathology, Asheville, North Carolina

11:30—State Park Problems:
Mrs. Linwood Jeffreys, Secretary, State Board of Forestry, Jacksonville, Florida

11:45—General Discussion

P. M.

1:30—Camouflage:
Karl F. Amalia, President, National Arborists' Association, Manchester, Massachusetts
Discussion

2:00—Symposium: Some Practical Aspects of Arboriculture in the Southeastern States
City Park Problems: Porter Reynolds, Superintendent of Parks, Ft. Lauderdale, Florida
Tree Moving Practices in the South: E. T. Halter, Palm Beach, Florida
Combining Landscape Contracting with Arboriculture: Harry C. Scott, Chattanooga, Tennessee
Tree Preservation Practices in the South: H. M. Van Wormer, Richmond, Virginia
Tree Problems of Texas: C. M. Blume, Houston, Texas

3:30—Proposed Constitution and By-Laws of the Southern Shade Tree Conference:
A. Robert Thompson, National Park Service, Washington, D. C.
Discussion

4:00—Business Meeting (Announcement of Committees)

5:30—Adjournment

Evening—El Comodoro Hotel

7:30—National Arborists' Association Business Meeting (Members only)
Meetings of various committees and other groups

Friday, February 20

A. M.

9:00—Care and Feeding of Ornamentals:
S. J. Lynch, Horticulturist, Sub-Tropical Experiment Station, Homestead, Florida

9:15—Benefits to be Derived from Affiliation with the National Shade Tree Conference:
Dr. Paul E. Tilford, Editor, National Shade Tree Conference, Ohio Agricultural Experiment Station, Wooster, Ohio

9:30—The Proposed Official Status of the Southern Shade Tree Conference in the Southern Regional Group of the National Shade Tree Conference:
Dr. L. C. Chadwick, Department of Horticulture, Ohio State University, Columbus, Ohio

9:45—Business Meeting:
Roll Call of Members
Reports of Officers and Committees
Affiliation with the National Shade Tree Conference
Adoption of Constitution
Election of Officers
Selection of Next Conference City

11:00—Business Meeting Regional Group No. 3 of the National Shade Tree Conference:
Election of the Board of Governors

P. M.

12:00—Busses leave for Matheson Hammock Park

12:30—Picnic Lunch at Matheson Hammock Park
Field Demonstrations: Conducted by A. D. Barnes
Tour of Fairchild Tropical Gardens and Matheson Hammock: Conducted by Dr. David Fairchild
Tour of U. S. Plant Introduction Gardens and Demonstration of Rub-

(*Continued on page* 17)

THE *City Arborists'* COLUMN

By EDW. SCANLON

The latest nominee to be heard from in connection with our budding little jive session of City Arborists is Ernest Rundlett, Arboriculturist for the New York Park Department. There is sincere interest in this growing section of the National Shade Tree Conference and it is hoped that when the 25th of August rolls around we will have doubled our present number of members. Inasmuch as there is no existing organization of or for the specialized field of the City Arborist, where could a more perfect place be found than this section of the National Shade Tree Conference. Speak or write to any acquaintance you have who may be engaged in this field of tree preservation and ask him to write this column and plan to be in Chicago.

Bill Rose, general chairman of the Eighteenth National Shade Tree Conference, has slipped me the toga of chairman for this section—O. K., but my friends, I hope you don't let me down, and I do mean down. City Arboriculture or Forestry is one of the most interesting and most useful phases of tree preservation. Economically it is not a luxury, it is a definite business asset to a city and here is where we should start.

For the purpose of starting this first organized meeting off with a constructive bang, I would like to suggest that we begin immediately to collect a gallery of pictures showing streets of outstanding design in the use of trees; streets where consideration of scale has been given, such as a narrow street planted with a fastigiate variety, in fact anything of an outstanding nature. I have in mind at this time a picture of a street that appeared in the January issue of the *"American Home"* (page 8 — lower left). Upon inquiry I learned that the street was the Grand Concourse from 167th Street, north in the Bronx.

A collection of pictures such as this would give us a grand start. I would suggest that the pictures be about 10x12 inches. Why couldn't each member agree to have his city contribute at least one?

Let's have some other ideas right away so we can work up a worthwhile session.

A New Anti-desiccant For Tree Preservation

By F. J. PALADINO,
Pathologist, New York, N. Y.

The burlaping or covering of trees with materials of a similar nature has been practiced by tree men and nurserymen for many years. In fact, it appears that the covering of plants is a custom of almost ancient lineage. When man first began to observe the behavior of cultivated trees, he concluded that they needed protection from the elements as much as he himself needed the protection of clothes.

The breeding and cultivation of plant stock has in most instances speeded up the demands upon nature; and, in consequence there has been proportionate increase in plant troubles and mortality. Nature can afford to wait—to produce life, longevity, hardiness and varieties out of its old *"survival of the fittest"* formula; but man apparently can't wait. Therefore, he must devise ways and means of extending nature's efforts. As a result he must prolong and increase the life expectancy in plants. This he has done for years, not necessarily knowing all the reasons for his actions, but satisfied that he was able to secure protection for his trees.

Unless the moisture lost through transpiration is readily taken through the root system and thereby compensate for the transpired loss, the plant suffers. Excessive transpiration results in dehydration which in turn causes desiccation and death of the plant. Injuries arising from this basic functional process may be brought about in summer or in the winter. It isn't always easy to diagnose a disturbance emanating from this cause. Sometimes trees die as a result of several seasons of adverse weather conditions. We find that plants suffer sun-scorch, winter drying, and freezing to death. These conditions may cause general disturbances, or may be observed as local injuries in the nature of lighting of leaves, twigs, bark, or the roots. Strangely enough, sun-scorch and winter injury are the result of the same type of physiological disturbances. Although the result is almost identical, the causes are mechanically different. Sun-scorch injury primarily results from excessive transpiration from the leaves and bark and an inadequate water supply within the soil. Winter drying is due to the inability of the plant to take up the water present in the soil because it is frozen. In addition, water freezing within the plant tissues cannot be moved out as fluid gas or liquid. Consequently it is evident that the health of plants is primarily dependent upon keeping a balanced moisture content within the plant from its smallest root hairs to the topmost leaves and twigs.

Boxwood sprayed with latex anti-desiccant on Samuel Untermeyer estate, Greystone, Yonkers, N. Y.

Hence, in order to protect plants against loss of moisture, sun-scorch, or any other condition tending to cause dehydration, tree men and nurserymen have resorted to a variety of protective measures. They have used fires, and smudge pots, hilling, straw covering, screening, burlaping, and more recently spraying the plants with wax preparations for the purpose of putting a protective film or layer upon the bark, twigs, and even the leaves. The most recent addition to this large group of anti-desiccants, and the second to the group dealing with chemical anti-desiccants is a liquid spray known as *Protex*.

Protex is prepared from the latex of the rubber tree, Hevea Brasiliensis. To this natural latex, or milk of the rubber tree are added various processing chemicals. The basic material itself is a non-caustic vegetable compound. None of the added ingredients are of a caustic or otherwise injurious nature. The finished product, a liquid, still retains its original color and basic properties—in other words, it looks like milk. It is packaged in cans, ready to be diluted with water and used. Protex mixes readily with water, does not have to be agitated since it makes a perfect suspension, and does not settle out. The spray is applied to trees, shrubs, and broadleaf evergreens. Experiments are being conducted on the use of this compound upon a wide range of plants including cut plants and flowers, and other agricultural plant products. Protex can be applied with any type of spraying apparatus. The concentrate is diluted with ordinary tap water. As it is being sprayed upon the tree or shrub it gives the appearance of whitewash, but as it begins to dry it becomes colorless. The finished dried application is a colorless, invisible, semi-permeable film which does not detract from the shape, color, or contours of the plant. However, it is the result which is important. The Protex film controls transpiration, or excessive loss of moisture. It forms a protective film which is a barrier to most types of soft bodied insects, and some of the more vigorous types. Most important of all, Protex is not injurious to the plant tissues, nor can the heat of the summer or the cold of the winter, rain and snow cause any chemical reaction in the dried film.

Once Protex dries on, and this may take from fifteen minutes to an hour, depending upon the humidity in the atmosphere, it will not come off except as it weathers off following exposure for from three to four months. Protex protects plants by regulating excessive losses in moisture. Protex may be applied by spraying or dipping; and may be used in any one of several methods as to concentration, applications, and procedure.

Trees...

BRIDGE GRAFTING

EDITOR'S NOTE: Many fine articles have appeared in Arborist's News, the organ of the National Shade Tree Conference. We believe many of these should have wider dissemination. With the permission of Dr. P. E. Tilford, editor of the Arborist's News and the author of the interesting experience reproduced here, we have inaugurated a policy of reprinting some of the more practical articles.

By W. E. ROSE,

Village Forester
Hinsdale, Illinois

During the winter of 1935-36 we experienced a great deal of trouble with field mice and rabbits. Winged euonymus, flowering crabs and other specimen plants and plantings had been protected with screen-wire and closely watched, but about the middle of March we enjoyed a rather complete thaw and discovered real trouble.

In one of our better subdivisions, the parkways had been planted with English elms, 4 and 5 inches in diameter, 12 years prior to 1935. We noticed some injury at the ground line of a few of these trees and after a careful checkup found 7 trees completely girdled and 10 others more than two-thirds girdled.

Never having had any grafting experience (and me a municipal employee) I was hesitant to recommend experimenting on such a large scale. The trees had become 8 to 10 inches in diameter and the bark at the base of the trunk was very thick and corky,—on some trees three-fourths of an inch thick. We were sure of one thing, which was that something had to be done and done quickly or we would have 17 English elms of considerable value dying on our parkways.

For the next few weeks I sought the counsel of local tree men and nurserymen regarding what procedure to follow. During this time the boys on the sprayer were too anxious to conquer the complete infestation of European elm scale in this area. Consequently, by the time I had decided to try bridge grafting, the trees had been sprayed and we had difficulty in finding suitable scions from unsprayed trees. Perhaps this was an unnecessary precaution but I was afraid the oil spray might be toxic to the cambium. We also used some scions of American elm and Littleford elm and found equal results as to mortality and much better results as far as grafting material was concerned. The strong, straight whips of either American or Littleford elm were much better to work with and have developed better than the small, too numerous twigged English elm scions.

We used the inlay type of bridge graft with an actual scion inlay of 2½ to 3 inches at the top and bottom. The length of scions varied from 6 to 14 inches and were about ½ of an inch or a little less in diameter. The grafts were spaced 3 to 4 inches apart around the trunks of the injured trees. Some grafts were made with a considerable bow in the scion using two brads at the top and bottom to hold them in place. On others we left no bow at all and brads were placed about 3 inches apart the entire length of the scion. The latter system proved much the best, no "kicking" out of callus growth was experienced at the top or bottom with this system. Another advantage of the flat placement was the fact that prying fingers, careless workmen cutting weeds, and in one instance a pup with sharp teeth found them harder to get at, thereby reducing mechanical damage. The grafts were made between the 1st and 16th of April, 1936, just at the time the buds were bursting.

As soon as each scion was placed, it was covered with grafting wax. I might say too, that we were very careful that *nothing* but the grafting knife and a pair of heavy tweezers came in contact with the exposed cambium. After all grafts were completed on a tree, it was spirally wrapped with a standard brand of asphaltic wrapping paper. The wrapping was started about 1 foot above the top of the grafts and wrapped down so that any moisture running down the trunk could penetrate the wrapping. This pro-

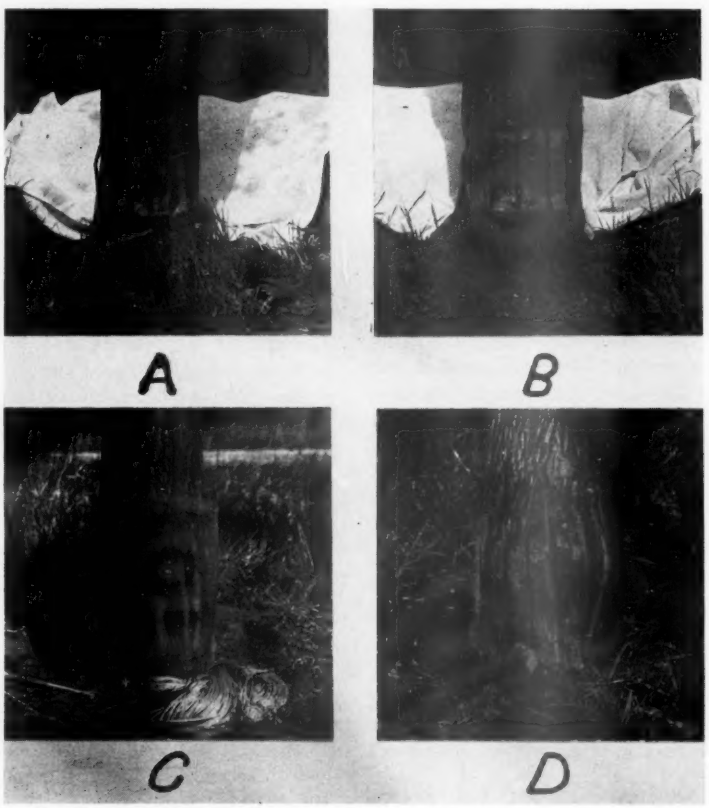


FIG. 1—A. April 1936, photograph taken immediately after grafting was completed. B. May 1936, note new shoots on scions. These were pinched off before rewrapping. C. Method of protection during winter. D. May 15, 1937, note bow in scions on the right side. —*Photos courtesy Arborists News*

ON ENGLISH ELMS

cedure may be questionable but we found that grafts in the shadier locations threw a quicker, stronger callus than those in areas exposed to greater amounts of sunshine. In full sun areas it apparently would be advantageous to erect a shade screen in addition to the wrapping.

Of the 178 scions grafted into the 17 trees in April, 1936, we found a mortality of 20 scions by the following October. Five of these were ruined due to mechanical damage by humans and animals but the remainder were physiological failures. Even these 15 showed a fair proportion of callus at the points of the grafts, but the longitudinal centers were dried out. In most cases. we attributed this to direct sunshine on the areas although they were wrapped all of the first year.

No further mortality has occurred since October, 1936, and now after four growing seasons some scions have grown together completely. No loss of top branches was experienced even without a thinning in the first place.

FIG. 2—Condition of grafts in May 1937, one year after the work was done.

Our maintenance program includes a spring cleanup, often a little judicious bark tracing and repainting plus cambium agitation, and also spading to remove tall ground cover. In the fall we recheck the grafted trees and wrap the trunk with screen wire.

It was unusual to find such serious injury on trees of such large size in this locality and we have experienced no further trouble of this kind on the English elms. Damage to small stock is still quite prevalent, but in the event that a large tree or valuable specimen is girdled again we feel quite confident that it will be worth the gamble to bridge graft. Our man-hour and material cost for the entire grafting operation was $120, a small fraction of the cost of replacing the 17 trees.

Maybe we were "fools for luck" but if you have any girdled trees, try it, the cost is little but the grand 'n glorious feelin' pretty big.

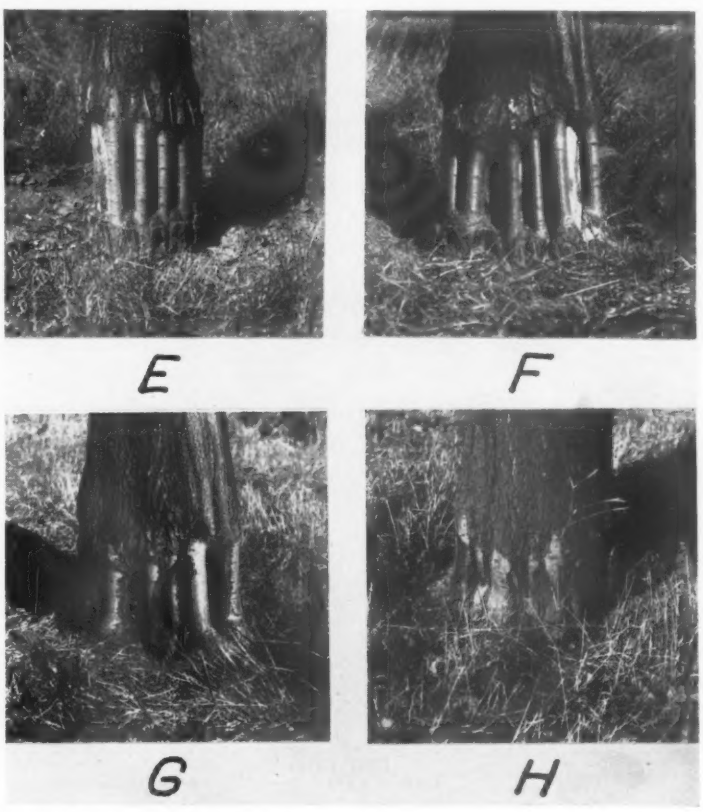


FIG. 3—E. September 1937, note loss of two scions on left side of trunk. F. September 1937, all of the scions on this tree are growing nicely. G. October 1939, in one or two more years this tree will be completely repaired. H. October 1939, the girdled area on this tree is completely sealed, 3½ years after grafting.

MASSACHUSETTS ARBORISTS

Three important discussions marked the January 8th meeting of the Massachusetts Arborist Association at Worcester.

Dr. E. F. Guba discussed "Slime Flux," followed by Wm. B. Becker, "Some Tree Boring Insects," and C. J. Gilgut, "Some Studies of the Bleeding Canker Fungus."

Milton W. Heath, of the Heath Tree Service, Inc., is the Secretary of the organization.

Several of the above papers will be reproduced in future issues of TREES.

Jacaranda — Green Ebony

(Jacaranda acutifolia)

By L. Glenn Hall
Landscape Architect
San Francisco, Calif.

One of the most exotic flowering trees for street parkways in Southern California and Florida is the Jacaranda (Jacaranda acutifolia). It is from the tropical jungles of Brazil and bears a Brazilian name. It belongs to the Bignonia family, which furnishes us with some of the most interesting flowering vines with large, brilliantly-colored tubular or trumpet flowers.

The Jacaranda has two outstanding features—its unparalleled blue trumpet flowers in clusters, which appear in the Spring while the tree is practically without foliage, and its finely-cut, fern-like, darkgreen foliage. There are very few trees that have blue flowers and none that are as showy as the Jacaranda. There are about fifty species of Jacaranda, all native of South or Central America. Some of the species have rose-colored wood which is valued in South America for cabinet work.

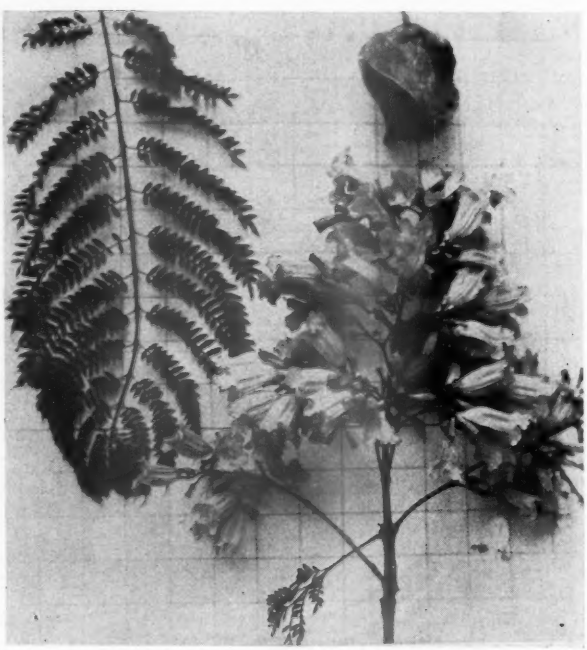
Trunk characteristics of large Jacaranda

The tree attains a height of 40 to 50 feet and has a spread almost as great. It has a somewhat rounded umbrella shape with most of the foliage at the ends of the branches. It is inclined to have a considerable amount of sucker growth on the older limbs, but this can be easily corrected by proper pruning.

While the Jacaranda is usually classified with broad-leaved evergreen trees it is partially deciduous, losing most of the foliage for a short time before the blossoms appear. It does not do well in cold situations, where the temperature goes below twenty degrees. Good drainage is also essential. It should not be subject to constant ocean winds.

(*Cont. on Page* 15)

50 *ft. specimen showing splendid form of mature Jacaranda*



Foliage, seed pod and flower panicle

Utility Tree Care in Ohio

By R. J. PRESTON

Division Forester, Ohio Edison Co., Youngstown, Ohio; Michigan Park and Forestry Association, 1940, *East Lansing, Michigan.*

Scientific, or rather improved, methods of line clearing, as distinguished from the spur and hatchet period, started about 1927 with the employment of a contract firm to perform this type of work. Company-operated crews were started in 1930.

Tree species encountered in our section do not vary greatly from those found in Michigan. In 1938-39 we made a survey of the division and found that 78 per cent of our trees were maples, elms, oaks, sycamores and poplars. The balance were made up of approximately 15 different species, none of which were common enough to warrant a separate classification, i.e., cucumber, tulip, honey locust, etc.

The survey also showed that we had approximately 102,000 trees on the division, with 27,200 being trimmed or removed (1939). This gave us an average of 52 trees per mile, 52.5 per cent of them being topped and 38 per cent side trimmed. The balance are under trimmed or cleared, as in the case of arc circuits. We also found that 87 per cent of our trees are trimmed for poles less than 40 ft. in height. This one factor, short poles, has worked a hardship on the contract trimmer and to some extent on the company crews. The one main difference has been that our own crews have made a practice of obtaining what clearance is possible, instead of necessary, and in the difficult cases recommending the addition of pole top extensions or replacement of poles.

No definite rules have been laid down as to which of these procedures will be followed. Poles with but a few remaining years of life are often provided with an extension. However, if the tree conditions are extremely difficult, this remaining life may be sacrificed and higher poles installed.

Pole top extensions have been of two types, (1) a fabricated, 7 ft. steel extension which gave an additional height of 5 ft. and (2) the use of two 10 ft. wooden cross arms giving an additional height of about 7½ ft. The steel extensions cost approximately $7 installed, as against $10 to $12 for the wooden extension. When the life of the pole is finally exhausted, replacements are made to provide 5 ft. or 10 ft. additional over the total height of the pole plus the extension. This will vary, of course, with the species, condition and location of the tree.

Short poles always present the problem of a frequent trimming cycle. For estimating purposes, the resulting tree will be 10 ft. less than the height of the proposed or existing pole. Where it is impossible to do other than overbuild trees, the proper size pole becomes a question of great importance. What height can we use, economically, to give us even a two-year cycle without damage to the trees and allow for their future growth? Frankly, I don't know.

Very generally, the older the tree the less trimming is possible without resulting damage. Likewise, the shorter the poles, the sooner we will have to do corrective trimming, at increased cost, if any attempt is to be made at preserving the semblance of a somewhat naturally shaped tree. As has been stated before, 52.5 per cent of our trees are topped. Very conservatively, 50 per cent of these trees will never assume their natural shape, regardless of what is done in the future toward correcting pole heights. Many of these trees have a crown, or possibly better to say, branch spread, of often 20 ft. more than their height.

Our problem with these trees is now not to worry so much about their shape, if their entire removal is impossible, as it is to find a point at which their annual growth does not keep us perpetually in hot water. I have made a very elementary study of the annual terminal growth of some of our trees and my findings are rather disheartening from the economic point of view of our company. For exam-

(*Continued on page* 18)

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"The Man in the Field Reports"

These two very interesting pictures show what can be done with a tree that has been horribly mutilated, undoubtedly by an untrained worker. The reaction of some might be that the tree was not worth saving, possibly so—but someone was interested enough to try a second time.

The pictures were sent by Nels J. Johnson, Arborist of Evanston, Illinois. Mr. Johnson is a member of the National Shade Tree Conference.

The case illustrates also an example where surgery was entirely justified and in fact the only treatment that prolonged the life of the tree by giving badly needed support and appearance.

Trees would like to present more cases of this type, or in fact, of any phase of tree preservation and invites other subscribers to follow Mr. Johnson's lead and send in pictures of some of their outstanding work.

Crude attempt at cavity work and results

Same tree after skilled treatment

Drought Threat to Sugar Maples

By P. P. Pirone
New Jersey Agricultural Experiment Station

Arborists and tree owners have expressed concern over the condition of sugar maples along city streets in central and northern New Jersey. They report that a number of trees have died and a large number of others made poor vegetative growth during the last summer.

About a dozen sugar maples in New Brunswick and Highland Park showing a similar trouble have been under almost daily observation by the author for the past 18 months. These trees were apparently normal in the spring of 1939.

The first symptom noted on these trees in the spring of 1939 was the appearance of a few branches with under-sized yellow leaves. As the season advanced, the leaves gradually wilted and died. Additional branches on the same trees failed to leaf out in the spring of 1940 while others which developed normally in the spring appeared to become progressively weaker during late spring and early summer. By midsummer all the branches of some of the trees were entirely leafless. In September the buds and many of the twigs were brown and dry in these trees. The buds and twigs of a few other trees are still green, indicating that such trees might leaf out next spring.

General observations and detailed examinations of affected trees have convinced the author that no parasitic disease is involved. Wilted and dead branches showed none of the greenish discoloration in the sapwood which is characteristic of infection by the Verticillium fungus. Branches from a few of the trees showed infestations of a species of borer which may have hastened their death. The borers were absent in most of the branches examined, however, indicating that this pest was not the primary cause of the trouble. Root tissue planting isolations from several freshly killed trees failed to yield any fungus known to be a pathogen of maples.

After eliminating fungi, bacteria, insects, illuminating gas, girdling roots, etc., as possible causes, it has become increasingly evident that the dying of the sugar maples can be explained only on the basis of unfavorable environmental factors. Before attempting to explain these factors, it is well to discuss the preferences of this species. The sugar maple requires a relatively large area and a well-drained, cool soil for best development. Any one traveling in northern New York and in New England soon realizes that sugar maples owe both their large size and beauty to the extremely

(*Continued on next page*)

favorable soil and environmental conditions. Most of these specimens never receive commercial fertilizers, and are rarely, if ever, artificially watered.

Young sugar maples appear to withstand unfavorable environmental conditions rather well. Towards mid-maturity, however, these trees become more sensitive to extreme changes in the environment. They also appear to be intolerant of the heat reflected from the pavements when growing along city streets and always grow better along roadsides and highways and in open areas, than in cities.

Though it cannot be proved definitely, the author is of the opinion that most of the trouble on sugar maples in New Jersey at present is directly caused by the 1939 drought. That the weather conditions in any season may profoundly affect trees a year or two later, is not often realized. As a matter of fact, the 1939 drought was so severe in some parts of New Jersey that the soil in the vicinity of sugar maples and other trees was dry for a depth varying from 3 or more feet—or at least to a depth well below that of the major part of the feeding roots.

The present trouble on sugar maples probably started as early as the summer of 1939, and is now becoming increasingly evident—more than a year after the time that most of the injury occurred. Whether the dry soil resulted in the death of many of the feeding roots, or whether it reduced the nutrient intake, upset the food storage processes, or hindered the maturation of tree tissues, is not known.

A second environmental factor which may have served to aggravate the present condition was the extremely low temperatures of the past winter. Although the sugar maple is thought to be quite resistant to freezing temperatures, the weakened condition of the trees as they went into dormancy last fall may have made these trees more subject to injury from the low temperatures. In addition, the two-week rainy period during the latter part of May in 1940 may have aided greatly in aggravating the present condition.

TREATMENT OF WEAKENED TREES

The commercial arborist and tree owners are most interested in the best methods to adopt to minimize the losses now in progress. Obviously there is little to be done for trees whose buds, twigs and branches are brown and dry. Before such trees are removed, however, one must be sure that the damage is permanent and beyond repair. It is well to point out that the unfavorable growing conditions may merely have forced some of the trees into dormancy prematurely. Perhaps the safest procedure, where some doubt exists, is to wait to see if the trees leaf out next spring before removing the more doubtful specimens.

Because nearly all sugar maples growing along city streets have suffered to some extent, it is well to fertilize them early next spring before new growth starts. In addition to applying fertilizers, water should be supplied artificially during future dry spells; at least until the trees are again firmly established. Although the latter practice is not feasible under the municipal management of city trees, it is certainly justified on valuable trees that are growing on private property. All dead and weakened branches should be removed and moderate pruning practiced in order to make the top commensurate with the decreased efficiency of the root system.—*Nursery Disease Notes.*

Jacaranda—Green Ebony

(*Continued from page* 12)

With good soil conditions the Jacaranda is a deep-rooted tree, but if stiff clay, hardpan or heavy adobe is encountered it sometimes leans considerably and may get top-heavy. It should be planted from 50 to 60 feet apart in street parkways at least five feet in width.

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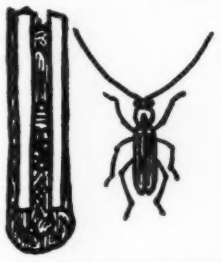

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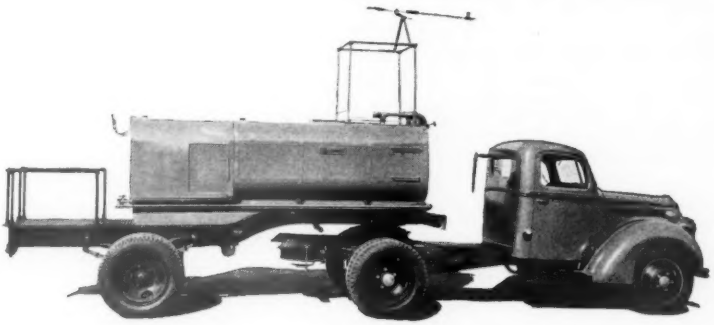

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This Means Trouble

The fall season was outstandingly warm and generally wet, except in the eastern drought area. Notwithstanding the relative dryness in November in much of the interior, the preceding two months had been so extremely wet that the total rainfall for the season as a whole was much above normal everywhere from the Lake region and Mississippi Valley westward to the Great Basin; some states had more than twice the normal for the three months. It was the wettest fall of record in Michigan, Iowa, Missouri, Kansas, and New Mexico, and the second wettest in Oklahoma. Kansas had approximately one-fourth more rainfall and New Mexico in excess of 40 per cent more than occurred in the previous wettest fall of record.

On the other hand, in the more eastern states severe drought prevailed throughout the period. Virginia had the driest fall of record, with 3.72 inches, or only 44 per cent of normal rainfall for the three months. Maryland, North Carolina, and South Carolina all had less than the normal; it was the second driest fall of record in Maryland and North Carolina. With regard to this year's rainfall in the east, both the winter and spring were decidedly dry. The summer season had somewhat more than normal rainfall, but this was followed by an extremely dry fall.

PRIORITIES

Because many of the raw materials used in the production of fertilizers are also important materials for the manufacture of munitions of war, priorities, allocations, and price ceilings may shortly be of importance in our national plantfood program. Nitrogen, one of the primary plantfood elements, is the basis of practically all modern explosives. Phosphorus, the second primary plantfood element, is an active ingredient in incendiary bombs and tracer bullets. Potash, the third primary plantfood, is essential in the manufacture of optical glass and gas masks. Compounds of these three elements are used in the production of literally hundreds of defense materials. Sulphuric acid, necessary in the production of superphosphate, is also essential in the production of TNT and smokeless powder.—*The Fertilizer Review.*

Soil and Sick Trees

(*Continued from page 7*)

color scale for phosphorus, potash, nitrogen and the pH. Match the color that shows up in the tubes after reagent liquids are added, *and by that color* you determine the relative amount of each of the plant foods, or the acid-alkaline condition of the soil. There are no involved computations; you simply match colors. Then there is a small booklet which gives you the answer, for each color on each scale, in terms of the quantity of each nutrient element present. Each color, on each scale, is identified by a letter. Find the letter in the booklet and you have the answer as to how adequate or inadequate that food constituent may be in that particular soil. You have the diagnosis and you can write the prescription.

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By C. J. HUMPHREY

BLEEDING CANKER: This disease of maple, beech, oak, elm, birch, and probably horse chestnut, caused by *Phytophthora cactorum,* is discussed in a number of articles during the past year.

In its 1940 annual report the Rhode Island Experiment Station (17) reports the disease occurring only in Rhode Island and adjacent Massachusetts, where trees 4 to over 50 years old were attacked. On young maple trees with smooth bark the cankers are sunken and vertically extended, giving a furrowed appearance. Bleeding is most noticeable following rainy periods in late spring or early fall. Two types of infection are disinguishable: a *chronic,* where the fungus and its toxin gradually kill the tree; b, *acute,* where the fungus kills the tree by girdling, in one to three years. The toxin of the fungus is so strong that excised maple, snapdragon and tomato shoots treated with it wilt within 2 to 10 hours. A di-nitro-cresol compound was found which kills the fungus and acts as an antitoxin, but does not kill living cells of the trees.

Pirone (18) reports first finding the disease in New Jersey in October, 1940, on Norway maple. There was a pinkish ooze at twenty bark fissures around the base. There was no canker, but the inner bark was reddish-brown to a depth of several annual rings, with the margin deep olive green. The same fungus also causes crown canker of dogwood and tip blight of rhododendron, as well as occurring on other hosts. Removal and burning of diseased trees, repair of frost cracks and mechanical injuries, fertilization, and watering are recommended.

Howard (19) in January, 1941, reported the following hosts: *Quercus rubra, Q. agrifolia, Ulmus americana, Betula lenta, Fagus grandifolia, F. sylvatica* var. *asplenifolia, Acer* spp., and probably *Aesculus hippocastanum,* with a distribution in several New England states, New York (especially Long Island), New Jersey, and southern California.

Miller (20) reports that the disease was first noted in southern California, on *Quercus agrifolia,* in 1938. Active cankers appeared as oozing bark fissures on crown roots and trunk, indicating fluid-filled cavities in the underlying inner bark, cambium, and sapwood. The ooze dries to black, tarry, or crystalline masses. Characteristic lesions were produced on both *Q. agrifolia* and *Q. virginiana* by a *Phytophthora* isolated from diseased sapwood.

The first chemical treatment of *Q. agrifolia* in southern California was reported in TREES, Vol. 4, No. 3, 1941.

Howard and Caroselli (21) experimented on tree injections. During 1939-40 over 349 diseased maple and beach were injected in the field with "Helione orange", a proprietary basic yellow dye, plus a penetrant. 85.4 per cent of the trees later failed to yield the causal fungus, had inactive cankers, and are forming callus, indicating slow recovery.

Further discussing this work Howard (22) reports on the use of a 0.5 per cent aqueous solution of a "di-hydro-chloride salt of diamino-azo benzene plus a solvent and penetrant (Helione orange)." While healthy maple trees were killed by injecting the toxic filtrate alone, the same filtrate to which the chemical was added prevented injury. Over 350 naturally infected trees have been injected with the "antidoting" chemical, have subsequently stopped bleeding, and show marked improvement in vegetative growth.

The New Jersey Experiment Station (23) calls attention to the need of further work to determine the mode of entrance of the causal organism, how it spreads, its reaction on different hosts, influence of environmental factors, etc. *Every tree with bark cankers from which a pink ooze exudes is not necessarily affected by the bleeding canker fungus, Phytophthora cactorum.* To support this, one fungus, as yet unidentified, causes identical symptoms. Likewise insect and mechanical injuries may give symptoms resembling bleeding canker. *Every tree infected by P. cactorum does not die within a short period.* Infected Norway maples in New Jersey, known to be severely infected in the fall of 1940, and in advanced stages of decline at that time, appeared to be in fairly good vigor in May, 1941, without any treatment having been given. Greenhouse inoculations gave well-differentiated cankers within a month. Within two months these spread to ⅓ or ½ the circumference. By late summer, however, growth of the cankers halted and callusing started. By fall most of the cankers had completely callused. *All trees infected with P. cactorum do not show pink ooze in the vicinity of the bark lesions.* This is particularly true of greenhouse inoculations, which did not show it within a year after inoculation. *There is no clear-cut evidence that chemically injected trees actually recover.*

BASIL CANKER OF MAPLES: Pirone (24) reports that during 1938-39 hundreds of maples, especially *Acer platanoides,* died in New Jersey. The disease is caused by a member of the *Phytophthora cambivora* group. An early symptom is a thin crown, resulting in a decrease in the number and size of leaves, the trees dying in a year or two. The most striking symptom, however, is cankers at the base of the trunk at the soil line. The inner bark, cambium, and often the outer sapwood become reddish-brown discolored. Infection does not appear to occur through unwounded bark. Young rhododendrons inoculated with isolations from diseased maples showed typical symptoms, but dogwood proved immune. This disease should not be confused with the bleeding canker, caused by another species of *Phytophthora.* There is no bark ooze, and the reddish-brown discoloration does not penetrate the sapwood so deeply. Likewise, the olive green margin is less intense. It also occurs only on the trunk, at, or below, soil line, death being caused by complete girdling rather than a toxin.

References

(17) R. I. Agr. Exp. Sta. Ann. Rept. 52, p. 38, 1940; (18) Plant Dis. Rep. 24, No. 23, p. 476. 1940; (19) Plant Dis. Rep. 25, No. 1, p. 31, 1941; (20) Phytopath. 31, No. 9, p. 863. 1941; (21) Phytopath. 31, No. 1. 1941; (22) Science 94, No. 2441, p. 345. 1941; (23) N. J. Exp. Sta., Nursery Dis. Notes 13, No. 10, p. 37: No. 11, p. 41. 1941; (24) Phytopath. 30, No. 1, p. 19. 1940.

Southern Tree Meet

(*Continued from page* 8)

ber Tapping: Conducted by Harold Loomis, Assistant Agronomist, U. S. Department of Agriculture in charge of rubber experimentation

Evening

8:00—Banquet at one of Miami's Popular Night Clubs

Saturday, February 21

A. M.

9:00—Symposium: Predictions for the Future of Irboriculture in a World at War: The Scientist: Dr. L. C. Chadwick, Department of Horticulture, Ohio State University, Columbus, Ohio
The Commercial Arborist: Orville W. Spicer, F. A. Bartlett Tree Expert Company, Stamford, Connecticut
General Discussion

10:00—Arborists' Clinic:
Questions and Answers on Leading Problems of the Day Regarding the Planting, Care and Preservation of Shade Trees and Ornamental Plants
Clinical Consultants will be made up of entire faculty

12:00—Adjournment

NOTE: The El Comodoro Hotel is located in the heart of the business district of Miami. Arrangements have been made with the El Comodoro Hotel whereby those attending the Fifth Southern Shade Tree Conference may obtain special rates—$3.00 single, $5.00 double. Make your reservations early!)

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Utility Tree Care

(*Continued from page* 13)

ple: Considering a 12 ft. tree in all cases, I find, in our section of the state, the following information regarding average annual terminal growth:

	Not Trim'd	*Trimmed*
Soft Maple	21 in.	56 ft.
Hard Maple	12½ in.	22 ft.
Sycamore	20½ in.	65 ft.

This information covers a check of 163 trees—each tree is numbered with an aluminum tag and the foremen carry blank forms, recording the date of trimming and the average growth made up to the time of retrimming. As is probably to be expected, the natural terminal growth slows up with advancing age of the tree. With hard maple and sycamore this same condition seems to hold true to a rather slight extent after trimming (sucker growth) but soft maple shows a sharp rise—steadily increasing with the age of the tree.

All utilities encounter similar problems in line clearance work. Another major problem is maintaining good public relations in this one very necessary activity. In one respect we are blessed, so far, in that we have only the individual property owner to consider. There are no municipal, county or state laws regulating our work. In rural areas, the state or county highways are occupied through easement only—the property owner owning to the center of the road and controlling, absolutely, the destiny of his trees. In the past, much criticism has been heaped on our heads by various organizations, for wholesale removals and improper trimming. *A large proportion of these removals were at property owner's request and no persuasion on either our part or any organization could have changed it.* We have been able to remedy a portion of this criticism in the past few years through the use of private right-of-way and proper size poles. However, this construction is still very much in the minority, considering our total line mileage.

Youngstown proper presents a somewhat different problem. Again, there are no regulations regarding street trees and no care given them other than that which our company provides as a good will gesture to our customers. A great majority of the streets are comparatively narrow, the strip between the sidewalk and curb being barely sufficient for a tree to stand. No alternative was left us but to overbuild with the result that our trimming cycle is very short—many sections needing trimming twice a year.

The primary circuits within the city have been changed just recently from 2300 to 4000 volts, with a grounded neutral—all secondary neutrals being interconnected and thus forming one side of the primary system. This seems to mean that we must be even more critical of our tree clearance than before. A safety hazard has also arisen with this construction as the trimming foreman must determine whether he is dealing with the primary system or the arc circuits.

Four years ago an amendment to the city charter was passed providing for the establishment of a Board of Park Commissioners to administer the affairs of the Park System and assume control and care of the city's trees. Up to the present time, no action has been taken in the latter case and the provision will probably never be enforced until public opinion, prosperous times or some benevolent New Deal, provides such funds as are necessary for this work.

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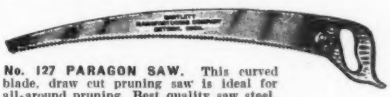

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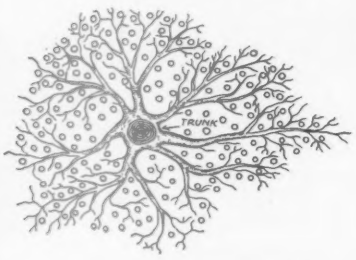

Diagram of root system

(1) *Diagram showing method of supplying Gaviota* TRE-TONIC *to Chlorotic trees. This method is advocated by leading Arboricultural authorities. Average dosage is computed at 5 lbs. of Gaviota* TRE-TONIC *to each inch of trunk diameter for trees over 6 in. For trees under 6 in. cut dosage 50%. Punch holes with bar or augur at the points indicated in the diagram by small circles.*

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